

Remarks

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

The specification and abstract have been reviewed and revised to make a number of editorial revisions. A substitute specification and abstract have been prepared and are submitted herewith. No new matter has been added.

The drawing figures have been objected to as not illustrating the "switching device" recited in claim 9. Claim 9 has been amended so as to change the term "switching device" to "switching unit". An example of the "switching unit" is the controller unit 28 in Figures 1 and 4. The controller unit 28 is discussed in the specification as controlling the opening and closing a number of valves. As a result, withdrawal of this objection to the drawing figures is respectfully requested.

Replacement Figures 2, 4, 8 and 9 properly labeling the through-hole 68 are enclosed herewith. No new matter has been added. As a result, withdrawal of this objection to the drawing figures is respectfully requested.

Claim 9 has been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the rejection indicates that the term "switching device" and the term "ejection" are unclear and inappropriate, respectively. Claim 9 has been amended so as to change the term "switching device" to "switching unit", as discussed above, and to remove the term "ejection". As a result, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 1-8 have been rejected under 35 U.S.C. §102(e) as being anticipated by Lehman (US 6,707,540) and Lehman (US 2003/0181139). Claim 9 has been rejected under 35 U.S.C. §102(b) as being anticipated by Pant (US 5,762,536). Claim 10 has been rejected under 35 U.S.C. §102(e) as being anticipated by Boyd (US 6,599,765).

Claims 1 and 9 have been amended so as to further distinguish the present invention from the references relied upon in the rejections. Further, claims 2 and 10-20 have been cancelled without prejudice or disclaimer to the subject matter contained therein and new claims 21-24 have been added.

In addition, claims 1 and 3-9 have been amended to make a number of editorial revisions. These revisions have been made to place the claims in better U.S. form. None

of these amendments have been made to narrow the scope of protection of the claims, nor to address issues related to patentability and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

The above-mentioned rejections are submitted to be in applicable to the amended claims for the following reasons.

Claim 1 is patentable over Lehman ('540), Lehman ('139), Pant and Boyd, since claim 1 recites a substrate polishing apparatus including, in part, a rotational angle sensor for detecting an angular position of a rotatable polishing table in a rotational direction of the rotating polishing table, and a fluid supply control device for controlling supply of fluid for measurement to a fluid chamber according to a positional relationship between the fluid chamber and a substrate which is detected by the rotational angle sensor. The references fail to disclose or suggest the rotational angle sensor and fluid supply control device as recited in claim 1.

Lehman ('540) discloses a CMP apparatus 600 for polishing a sample 602. The CMP apparatus 600 has a platen 606 with a hole 608 therein. The hole 608 is configured so as to contain a self-cleaning objective. The self-cleaning objective includes an optical element 610, a fluid pump 612, a fluid outlet 614, and a flowing fluid 613. The fluid pump 612 and the fluid outlet 614 act to generate a constant fluid flow of the fluid 613 between the optical element 610 and the sample 602. (See column 13, line 47 – column 14, line 23 and Figure 6).

While Lehman ('540) discloses that the fluid pump 612 and the fluid outlet 614 act to generate a constant fluid flow of the fluid 613 between the optical element 610 and the sample 602, it is apparent that Lehman ('540) fails to disclose or suggest a rotational angle sensor as recited in claim 1. Further, it is apparent that Lehman ('540) also fails to disclose or suggest that the fluid flow of the fluid 613 is controlled according to a positional relationship between the self-cleaning objective and the sample 602 which is detected by a rotational angle sensor. As a result, claim 1 is patentable over Lehman ('540).

As for Lehman ('139), it discloses a system for polishing a specimen. The system has a platen 250 mounted on an objective housing 248. The objective housing 248 and

the platen 250 have a hole therein where a housing 238 is mounted. The objective housing 248 and the housing 238 contain an inlet 244 that allows fluid to enter a space 245 defined by an upper surface of the housing 238 and a diaphragm 242 and an outlet 246 for removing the fluid from the space 245. (See page 12, paragraphs [0106] and [0107] and Figure 1k).

As discussed above, Lehman ('139) does disclose the inlet 244, the space 245, and the outlet 246 for allowing a fluid to pass therethrough. However, it is apparent that Lehman ('139) fails to disclose or suggest a rotational angle sensor as recited in claim 1. Further, it is apparent that Lehman ('139) also fails to disclose or suggest that the fluid flow in the inlet 244, the space 245, and the outlet 246 is controlled according to a positional relationship between the space 245 and the specimen which is detected by a rotational angle sensor. As a result, claim 1 is patentable over Lehman ('139).

Pant discloses a linear polisher for wafers having a platen 25 with openings 30 therein. The openings 30 are at sensing locations 27, which can correspond to fluid dispensers, where a number of pressure sensors 29 are able to detect the pressure applied when a wafer is being polished via a corresponding number of channels 31. The polisher also has a fluid dispensing control unit 36 to control the dispensing of a fluid. (See column 6, line 14 – column 7, line 36 and Figure 5).

Since Pant discloses a linear polisher, it is apparent it fails to disclose or suggest a rotational angle sensor as recited in claim 1. Further, Pant also necessarily fails to disclose or suggest that the fluid dispensing control unit 36 controls fluid flow according to a positional relationship between the fluid dispensers and the wafer which is detected by a rotational angle sensor. As a result, claim 1 is patentable over Pant.

Boyd discloses a polishing apparatus for a wafer having a platen 128 with a pad 120 mounted thereto. The platen 128 has a hole containing an interferometer 154 for taking measurements and a pair of fluid extension lines 158. The hole is covered by a window 132 and the lines 158 pass through the window 132. The pad 120 has a cavity 162 which is located over the window 132 and the lines 158 are positioned so as to output a fluid to the cavity 162. (See column 7, line 41 – column 8, line 23 and Figure 8).

While Boyd does disclose the fluid extension lines 158 for supplying the fluid to the cavity 162, Boyd fails to disclose or suggest a rotational angle sensor as recited in

claim 1. Further, Boyd also fails to disclose or suggest that the fluid flow from the lines 158 is controlled according to a positional relationship between the cavity 162 and the wafer which is detected by a rotational angle sensor. As a result, claim 1 is patentable over Boyd.

As for claim 9, it is patentable over Lehman ('540), Lehman ('139), Pant and Boyd for reasons similar to those discussed above in support of claim 1. That is, claim 9 recites, in part, a rotational angle sensor for detecting an angular position of a rotatable polishing table in a rotational direction of the rotating polishing table, and a switching unit for switching into which of a first passage and a second passage a fluid is introduced based on a detection signal of the rotational angle sensor, which features are not disclosed or suggested by the references.

Claims 1-8 have been provisionally rejected under the judicially created doctrine of double patenting over claim 9 of application serial number 10/854,250. Claim 10 has been provisionally rejected under the judicially created doctrine of double patenting over claim 7 of application serial number 10/617,794. These rejections are also submitted to be applicable to the amended claims for the follow reasons.

As discussed above, claims 1 and 9 each recite, in part, a rotational angle sensor for detecting an angular position of a rotatable polishing table in a rotational direction of the rotating polishing table. It is apparent that claim 9 of application serial number 10/854,250 and claim 7 of application serial number 10/617,794 both fail to recite such a feature. As a result, withdrawal of these provisional double patenting rejections is respectfully requested.

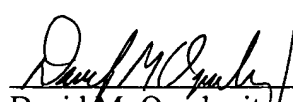
Because of the above-mentioned distinctions, it is believed clear that claims 1 and 3-9 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1 and 3-9. Therefore, it is submitted that claims 1 and 3-9 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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